

Berkshire Regional Planning Council 2004 Hydrogeochemistry Study of Kampoosa Bog, Stockbridge, Mass.

Kampoosa Bog is the largest, most diverse calcareous lake-basin remaining in Massachusetts, and the heart of the Kampoosa bog Critical Environmental Concern. Misnamed a bog, this wetland complex is actually a graminoid (grass-like) fen, classified as such by its assemblage of plants, alkaline chemistry, and hydrology. More than 20 state-listed plants and animal species occur in Kampoosa Bog, making it the best example of this wetland type in New England. Water chemistry and hydrology define the ecologic structure within Kampoosa Bog, yet little is known about the major flow paths of water that supply nutrients and dissolved minerals to vegetation.



Groundwork Lawrence “North Common Alleyways ” – 2008

Funded through MET, the North Common Alleyways Project allowed Groundwork Lawrence to explore redevelopment possibilities for the North Common Neighborhood Alleyways through the lens of low-impact development (LID), highlight potential redevelopment scenarios for the alleyways using a variety of LID techniques, and educate the public (residents, business owners, City officials, developers) about these possibilities with the guidance of a qualified LID/engineering firm.



JSI Center for Environmental Health Studies

“Training Teen Leaders to Protect the Spickett and Merrimack Rivers” – 2004

MET project Comunidades Saludables/Healthy Communities: Hispanic Leadership to Protect Water Resources in Merrimack River Communities.

Our Latina teens in Lawrence, MA spray painting storm drains in English and Spanish –
Dump No Waste Drains to River.



The Nature Conservancy

“Control of *Phragmites australis* in Interdunal Wetlands” at Sandy Neck Barrier Beach, Cape Cod, Barnstable, MA 2002-2008

- Sandy Neck is a six mile barrier beach system, located on the north shore of Cape Cod, which contains over 150 wet interdunal swales ranging from unvegetated pools to graminoid dominated swales and shrub swales. These wetland pockets within the dune system are fed by groundwater or collect rainwater and function as “vernal pools” providing food and water sources for wildlife. Swales range in size from .01 acres to over three acres. Over the last two decades, the common reed, *Phragmites australis* has migrated into the swale system and has been documented to decrease density of other plants, change community composition, and reduce light transmission to the soil surface. In 2001, 55 of 128 swales were considered “invaded” (18 acres). Since that time the number of invaded swales has increased to 89 of 162 mapped swales (34 acres) due to more mapping and inventory work as well as expansion of the *Phragmites* invasion.



The Nature Conservancy

“Control of *Phragmites australis* in Interdunal Wetlands” at Sandy Neck Barrier Beach, Cape Cod, Barnstable, MA 2002-2008

- In 2002 the Massachusetts Chapter of The Nature Conservancy (TNC) initiated a *Phragmites* control project following research by the University of Massachusetts on the extent and impacts of *Phragmites* at the site. By 2008 this project was able to chemically treat or retreat all 89 swales (Figure 1). When we started the control effort swales were fairly equally divided into low (23), medium (35) and densely (22) invaded swales. Currently about 66 swales are at a low level of density of *Phragmites* with just 8 at medium density and 3 at high density. Of the 66 low density swales, 31 had less than 50 stems in 2008. Twelve swales have had complete eradication (although follow-ups will continue to be needed). This project has continued through 2008 with support from the Massachusetts Environmental Trust, USFWS Partners Program, NRCS WHIP grants and gifts from private foundations.



The Nature Conservancy

“Westfield River Continuity Project” – 2003 through 2005

Volunteers measuring a culvert on Tower Brook.



Cape Cod Commercial Hook Fisherman “ Chatham Fish Pier Host ” – 2008

Retired fisherman on the Chatham Fish Pier as a host, to give tours, answer questions, and engage the public on marine environmental issues.

Below: Pier Host, Kenny Eldredge, a local fisherman, talking with fish pier visitors.



Center for Global Health and Environment
“Once Upon a Tide” - 2006-2007
Harvard Medical School

- ***Once Upon a Tide*** reconnects its audience to the importance of the ocean for all life on Earth, including human life. Unlike conventional natural history documentaries, *Once Upon a Tide* is a fictional narrative that blends the moral and visual elements of a mystical fairy tale to inspire us to recognize the importance of ocean conservation. Told through the unique voice of Academy-Award winner Linda Hunt, the narrative is set in a time, not unlike our own, when a spell has been cast causing people to forget about the ocean’s importance to our lives.



- With this backdrop, we meet a young girl, and led by her, we embark on a fantastic journey, where orcas swim through corn fields, scientists talk in rhyme, and the power of dreams helps her, and the audience, discover how the ocean touches all parts of our Earth and nurtures our existence.



The Ocean is Good for Us
 Our bodies depend on the environment for our basic needs, such as food and water. Because our planet is mostly ocean, we need the ocean for our health and well-being. We simply could not exist without it. Here are some ways the ocean takes care of us:

All life, including our own, depends on a healthy ocean

The Ocean Heals Us
 by providing important information that leads to medical breakthroughs with powerful abilities. For example, painkillers modeled after cone snail toxins are 1,000 times more powerful than morphine.

The Ocean Nourishes Us
 by providing a healthy source of protein rich in essential fatty acids. Globally, seafood provides the most animal-based protein for our diets - more than poultry, pork or beef.

The Ocean Sustains Us
 by providing the driving force of our climate which feeds our crops and quenches our thirst.

www.healthyocean.org

Dartmouth YMCA “Sharing the Harvest” – 2005

The success of this community farm is a true testament to the positive impact volunteerism and community partnerships can have in solving problems facing our cities and towns in today’s challenging economic environment. Our ongoing relationship with many local community organizations, farmers and residents is helping to fight hunger and solve a serious community need. *Sharing the Harvest* is making a difference and improving the quality of life for thousands of low income children, families and seniors in Southcoast, Massachusetts.



Lowell Land Trust “Concord River Alewife Restoration Project in Lowell” - 2003

The project directly contributed to the return of the historic run on Concord River alewife through developing stakeholders trained in the monitoring of alewife. All data collected will be made available to interested agencies.



Massachusetts Audubon Society “Oyster Reef Restoration” - 2009

MET funds support Mass Audubon's oyster reef restoration project that is being undertaken on tidal flats at our Wellfleet Bay Wildlife Sanctuary. This pilot restoration will be closely monitored to determine success at establishing the reef as a self-sustaining entity, as our long term goal is to restore wild oyster populations and habitat to the broader marine ecosystem in Wellfleet Bay and beyond. We are also augmenting our research efforts with education and outreach efforts and creating school programming on this topic to increase support for the restoration of this key coastal habitat



Minuteman Career & Technical High School “Water Quality Monitoring” 1998

A watershed protection program in Cambridge Reservoir Watershed that will remain as part of the high school curriculum. The project focus is on stormwater runoff and will include testing a sub-watershed for a variety of key parameters and community outreach.



**Minuteman Career and
Technical High School 1998
Water Quality Monitoring
Project**



The Coalition for Buzzards Bay

“Vivieros Farm” - 2006

"Between 2005-2009, The Coalition for Buzzards Bay was successful in securing more than \$7 million in oil spill penalty funds from the North American Wetlands Conservation Act (NAWCA) Program to permanently protect more than 650 acres of watershed forest and wetlands including four and a half miles of Buzzards Bay shoreline, such as that seen here at the Viveiros Dairy Farm in Fairhaven. Two grants from the Massachusetts Environmental Trust covered land acquisition project costs and a critical portion of the required non-federal funding match for the NAWCA Program."



Westport River Watershed Alliance

“Water Quality Monitoring Program” - 2009

MET helps to fund the Westport River Watershed Alliance's (WRWA) Water Quality Monitoring Program to assess nitrogen and bacteria pollution sources and sinks for the Westport River. The goal of WRWA's Water Quality Monitoring Program is to identify pollution origins, to measure water quality improvements in areas where remedial efforts have taken place, and to improve the nitrogen related Health Index of the river. WRWA has expanded its program with added stormwater monitoring of nitrogen and bacteria; and also reports to residents of Westport on the results of collaborative water quality studies done in 2009 in a *Health of the River Report*, to be sent to all Town residents.



Watersheds, Water Quality, and You! - 2006

Programs at The Discovery Museums funded by the Massachusetts Environmental Trust



Museum visitors use water from rain barrels to observe how water runs off impervious surfaces, such as brick and asphalt, and percolates into pervious surfaces, such as pervious pavers, grass pave, and gravel pave.

Watersheds, Water Quality, and You! - 2006

Programs at The Discovery Museums funded by the Massachusetts Environmental Trust



U.S. Geological Survey scientist shows visitors how wells work as part of demonstrations with a groundwater model.



Museum visitors measure changes in electrical conductivity as they add salt grains to freshwater.

Watersheds, Water Quality, and You! - 2006

Programs at The Discovery Museums funded by the Massachusetts Environmental Trust



Museum visitor experiments with ice, sand, and salt to see how different materials melt ice during ***Icy Investigations***.



Museum visitor adds water to the terrarium that she has created. Visitors learned about the water cycle and made a mini ecosystem to observe at home.

Watersheds, Water Quality, and You! - 2006

Programs at The Discovery Museums funded by the Massachusetts Environmental Trust



Visitors to The Discovery Museums' ***Water Wise Family Night*** experiment with groundwater models and surface-water models.

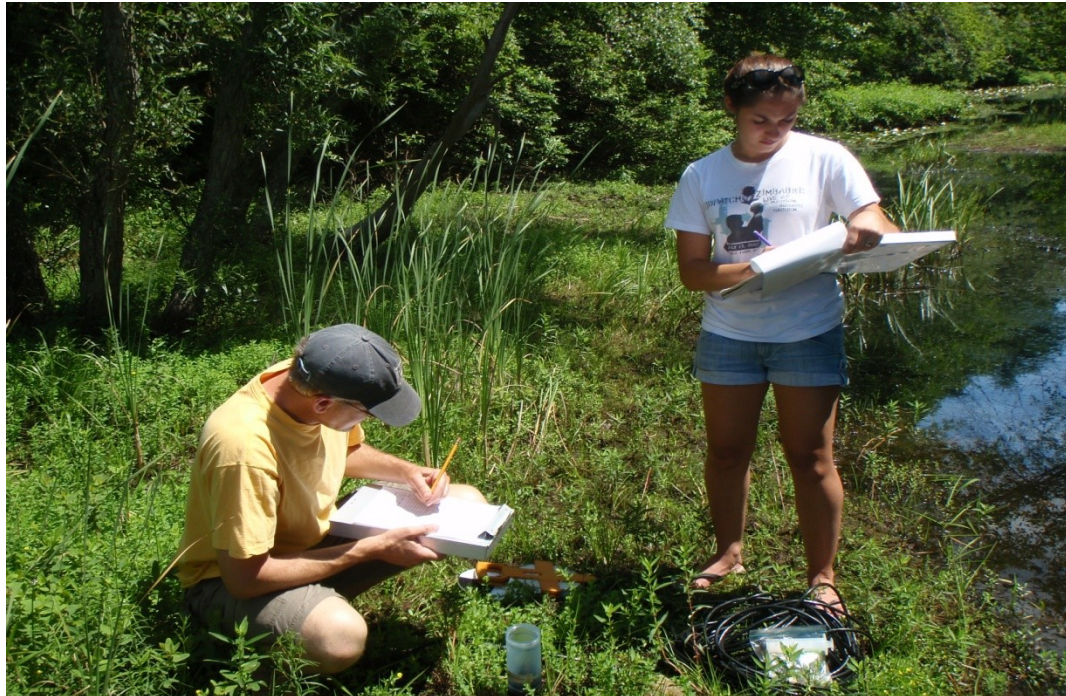
Toxics Action Center
“Campaign to Protect Massachusetts Water Resources”
Lake Cochituate - 2009



Jones River Watershed Association

“Ready, Set, Action!” - 2009

- ***Ready, Set, Action!*** – provides on-the-ground education and work to improve the native habitats and species diversity of Pine Brook and Howard Brook as part of the effort to restore the ecosystem functions in Jones River. The project is a partnership between several local groups including the Town of Kingston Conservation Commission, Town of Kingston Open Space Committee, Silver Lake Regional High School, and Rushing Rivers Institute.
- There are several components of this project. We are: 1) working with the Town of Kingston to develop a management program for the Cranberry Watershed Preserve; 2) conducting teacher and volunteer workshops on how to perform a habitat assessment; 3) working with teachers, their students and volunteers to facilitate a habitat assessment of Pine Brook; 4) working with teachers, students and volunteers to develop native habitat restoration nursery stock on the Preserve; 5) conducting on-the-ground restoration of Pine and Howard Brooks by restoring natural stream conditions; and 6) developing a “how to” video describing the environment, the steps in assessment and monitoring, and the work accomplished.



Urban Ecology Institute

“CityRoots” – 2009

For several years, the Urban Ecology Institute (UEI) has been a proud recipient of Massachusetts Environmental Trust (MET) funding in support of its CityRoots program. This past year, thanks to MET, UEI was pleased to work with 8 neighborhood resident groups across Boston. Some of these groups were newly formed while others were well-organized entities continually identifying new ways to broaden and engage its membership. Each group in their own way, through tree plantings and low impact design measures like rain gardens, rain barrels and permeable paver installation fostered a newfound sense of civic pride and environmental stewardship. They engaged residents of all ages in shaping a vision of their community and then making that vision a reality. UEI’s CityRoots team nurtured the ideas shared by each group and helped them stretch the boundaries of their concepts.



CityRoots participant, Sherri Davis, stands with the rain barrel she just installed on her house in the Dorchester neighborhood of Boston.

Project Native

“Seed Bank” 2002 – 2004

Project Native's Seed Bank was created with a grant from the Massachusetts Environmental Trust to establish native perennials in the ground so that their seed can be collected for reproduction in the nursery, restoration projects and landscaping. The plants in the seed bank will provide much of the seed needed for the nursery and future wetland restoration projects in the tri-state area. Preparations for the seed bank began in the summer of 2004 with the gathering of local perennial seed from plants found in the wild throughout Berkshire, Columbia and Litchfield Counties. Seeds were then propagated in the nursery and planted in July of 2005. This year we planted two additional rows of seed bank which contain nine new varieties of native grasses and perennials. Each bed is labeled with a laminated placard that gives some specific information about each specie. Over time the plants in the seed bank will cross-pollinate to create a true "Berkshire Taconic" variety. The following are the three mixes available to the public through our garden shop.





Silent Spring Institute

“Study of Pharmaceuticals and Endocrine Disrupting Compounds in Cape Cod Drinking Water” – 2008

Cape Cod drinking water supply wells may be susceptible to wastewater contaminants that leach from septic systems. Thanks in part to funding from MET, Silent Spring Institute will be testing 20 public drinking water supply wells for pharmaceuticals, personal care products, endocrine disruptors, and other contaminants. Nine districts in Barnstable County are participating in this study, and sample collection will occur in late October. This study will provide a sense of the vulnerability of Cape Cod wells to contamination by wastewater and the influence of factors such as land use in recharge areas.



Massachusetts Watershed Coalition

“Low Impact Development” - 2008

LID Workshops: Project partners sponsored two training sessions that offered fifteen workshops about low impact development, conservation design and stormwater management, including:

January 2008 Community Stormwater workshops offered guidance to nearly one hundred municipal officials, watershed organizations, lake associations, builders and engineers.

March 2008 Sustainable Watershed workshops helped seventy five participants from town boards and community groups learn about techniques to grow greener and protect the health of local waters and ecosystems.



MASSACHUSETTS WATERSHED COALITION

“Stormwater Management By-Law” - 2008

Residents of Sterling

Please attend the
Public Meeting
Thursday
March 19
7 p.m. at
Butterick Municipal Building

Careful planning of land development will help safeguard the Town’s streams, lakes and water supplies. The Stormwater Committee is proposing this By-law which will establish permits to better manage stormwater. These permits will require treatment practices that prevent pollution and flooding. The By-law will not affect single family homes, or current development projects.

The proposed Town By-law will:

- Protect the health of Town lakes and streams
- Maintain groundwater flows to lakes and wells
- Prevent flooding of brooks and rivers in Sterling

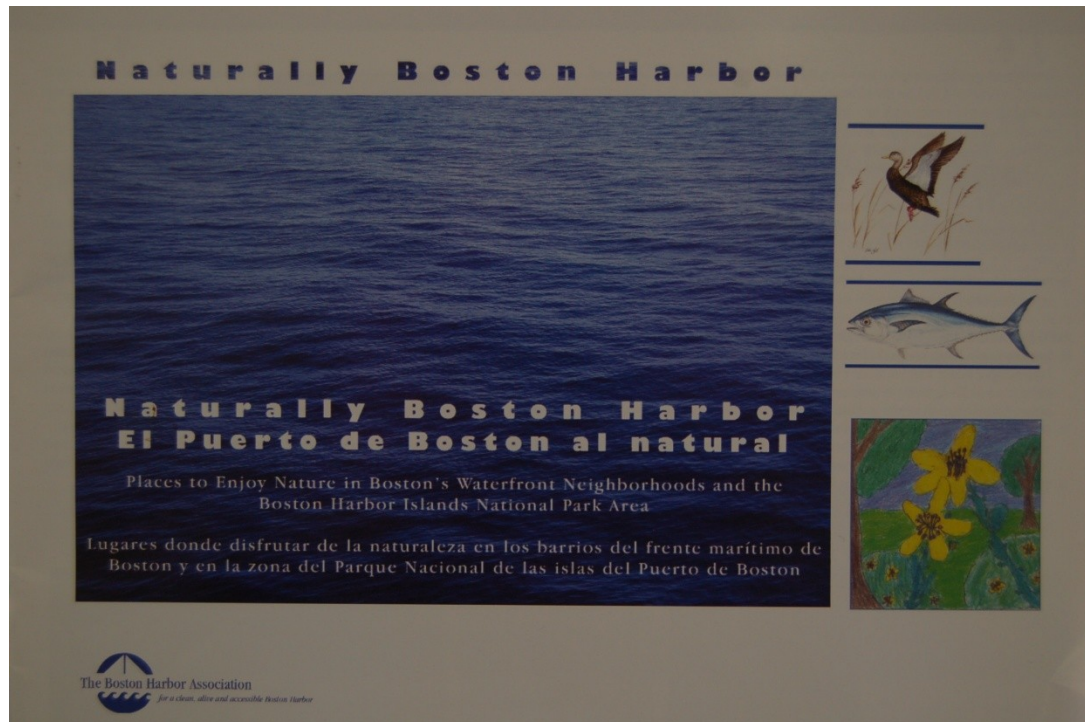
Please attend this meeting to consider the proposed stormwater permits. The input of Town Boards and residents will help to create a By-law that can best achieve these community benefits.



The Boston Harbor Association

“Naturally Boston Harbor” - 2004

TBHA produced a sixteen-page color bi-lingual brochure entitled “Naturally Boston Harbor” that highlights the flora and fauna flourishing in and along the Boston Harbor as a result of the Boston Harbor cleanup. The brochure describes sixteen unique and accessible locations along the Harbor in Charlestown, East Boston, Dorchester, South Boston and the Harbor Islands. It provides photos and detail about the flora and fauna that one may find at each location, as well as maps, historical background, current descriptions, suggestions for activities, directions, and contact numbers for further information. Printed in English and Spanish and available free of charge, the brochure helps to meet the demand for easy to understand information about the natural environment of the Harbor. Residents and visitors can take self-guided tours, enjoying the flora and fauna based on their unique interests and schedules. Teachers and youth leaders are also using the brochure to bring children and young adults to the Harbor for educational and recreational programming.



Gulf of Maine Institute
“Restore Our Salt Marshes” - 2005

In downtown Boston, MA, students of the Gulf of Maine Institute map the devastating expected levels of water rise due to Global Warming



Neponset River Watershed Association

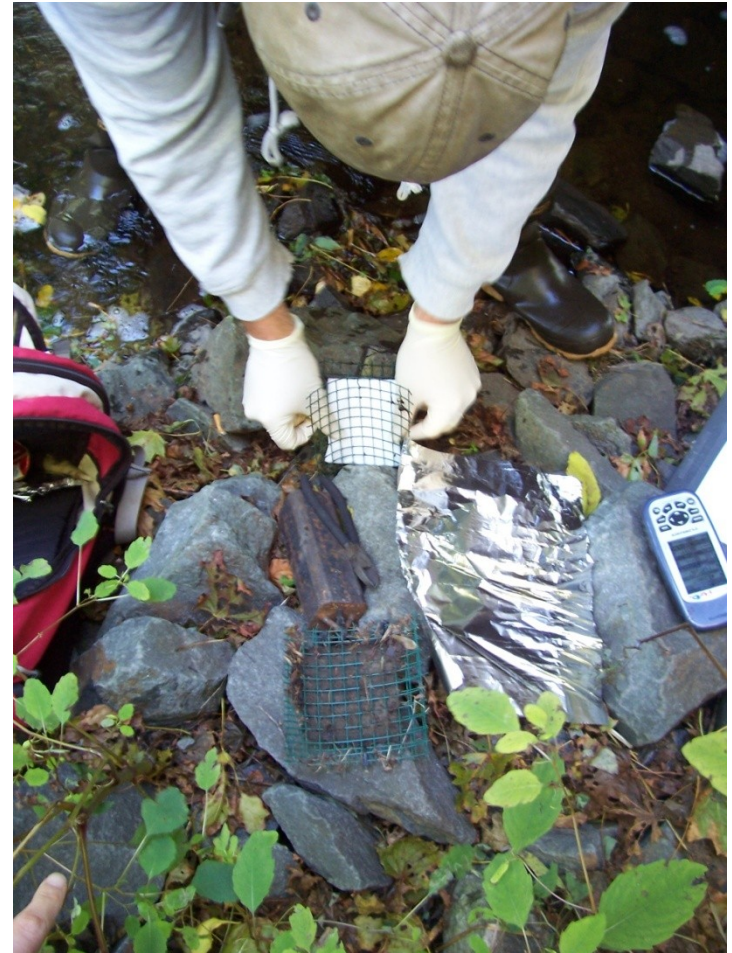
“Optical Brightener Pilot Project “- 2009

Searching for sewage pollution using optical brightener sampling on Pine Tree Brook, Neponset River Watershed, Summer 2009



Neponset River Watershed Association

Searching for sewage pollution using optical brightener sampling on Pine Tree Brook, Neponset River Watershed, Summer 2009



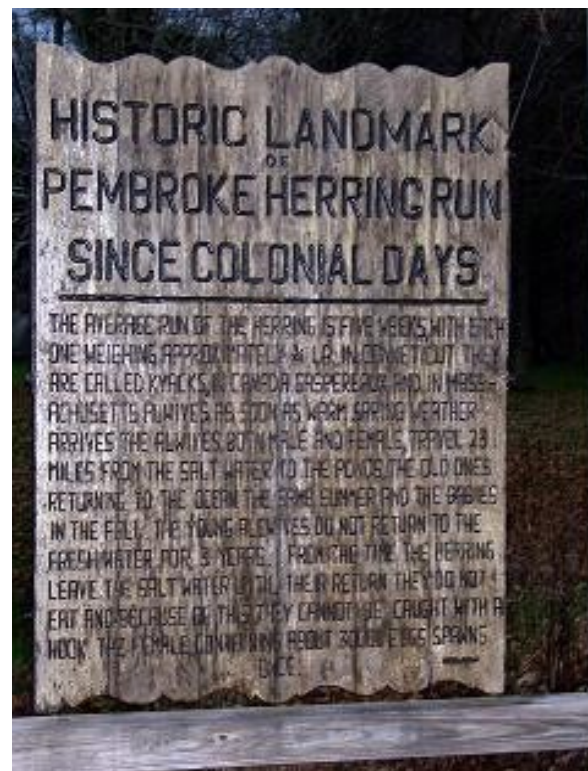
The North and South Rivers Watershed Association

“Monitoring Climate Change Impact on Fish Runs” - 2009

Awarded an MET grant in cooperation with other regional hosts for the Massachusetts Bays National Estuary Program (MBP) to measure temperature and water level at important herring runs along the MA coast from the NH border to Provincetown (the MBP region). We will be installing automatic data loggers and creating a regional database for herring run flow and temperature data. This data can also be used to study the impacts of climate change on our state fish runs.

Temporary fish ladder at Upper Mill Pond, Herring River,

Pembroke; historic fish run sign



Organization for the Assabet River

“Assessing River Continuity” – 2009



The Organization for the Assabet River (OAR) is assessing stream continuity for fish habitat in the Nashoba/Fort Pond Brook sub-basin of the Assabet and Concord River watershed. With training and technical assistance from the Massachusetts Riverways Program, OAR staff and volunteers are assessing whether bridges and culverts pose a barrier to fish and wildlife passage and will prioritize problem crossings and culverts for future remediation.

OAR is working with town Conservation Commissions, highway departments, and other interested groups to plan the surveys; in the spring these groups will review the findings, and prioritize remediation projects for problem crossings.

Participation in this study will help increase awareness of the basin's small tributary streams, the fish and wildlife that depend on them, and the barriers to river continuity. The information collected will be added to a state-wide database, contributing to the understanding of the magnitude of the problem statewide.

MERRIMACK RIVER WATERSHED COUNCIL

“River Quality Monitoring” – 2008

While MRWC is making a direct impact on the river, it is our members that make the biggest ripple.

The funding we receive from our members enables us to monitor the river, educate people on the importance of water cleanliness, work with local communities to prevent contamination, and promote a healthy water quality, which is vital to the sustainability of our homes, businesses and lives. For more information or to join, check us out on the web at <http://www.merrimack.org>



TUFTS UNIVERSITY CUMMINGS SCHOOL OF VETENIARY MEDICINE

“Microbial Source Tracking” – 2009

“Microbial Source Tracking: a new tool for identifying sources of pathogenic *Salmonella* serotypes in coastal waters and routes of transmission to a threatened seabird species at Cape Cod, MA”



Charles River Watershed Association

“Find It and Fix It Stormwater Pollution Program” - 2006

The “Find It and Fix It” stormwater assessment program, a collaborative effort between Charles River Watershed Association (CRWA) and the Mystic River Watershed Association (MyRWA) with funding from the Massachusetts Environmental Trust, involved extensive visual shoreline surveys, water quality monitoring, meetings with municipal stormwater officials, research into non-point source pollution remediation strategies, and an extensive educational campaign about non-point source pollution reduction and remediation

Accomplishments of this program include:

- Collaboration to designate Boston Harbor and the Lower Charles River Basin as the nation’s largest ur-ban No discharge Area (in which boats are prohib-ited from dumping raw or partially-treated sewage)
- Wet and dry weather water quality monitoring along the Charles and ten of its tributaries to assess stormwater impacts
- Monitoring and assessment work that led to identification and municipal investigation of elevated bacteria concentrations in local waterways
- Free or low cost educational field trips and workshops on low impact development (LID) stormwater management practices for municipal officials in our watershed communities
- An educational seminar and website for watershed residents on environmentally friendly landscaping techniques
- Assistance and engagement of more than 100 volunteers in conducting visual surveys of approximately 55 miles of the Charles River and its tributaries, enhanc-ing CRWA’s detailed knowledge of the River
- Publication of a guidebook to help groups conduct their own stormwater assessment and remediation programs which is currently being used by local municipalities



Former staff member, Dave Kaplan, conducting a shoreline survey

Massachusetts Audubon Society “Tackling Stormwater in the Blackstone River Watershed” - 2009

MET partially funded the BRC’s watershed wide volunteer water quality monitoring program. 80 volunteers sample at 81 sites throughout the watershed on the second Saturday of every month from April through November. The data are crunched each year to produce the Blackstone Watershed’s Water Quality Report Card



Massachusetts Audubon Society

“Tackling Stormwater in the Blackstone River Watershed” - 2009



- Also at Mass Audubon’s Broad Mead Brook Conservation Center in Worcester we built a demonstration rain garden and a take-away brochure to encourage homeowners to create their own rain garden.
- The photo show the rain garden.





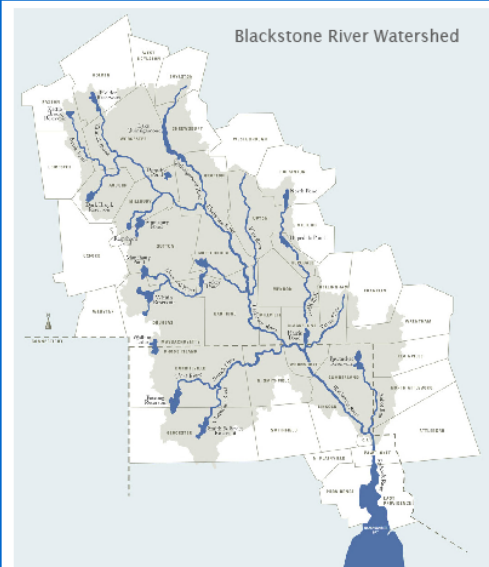
Massachusetts Audubon Society

“Tackling Stormwater in the Blackstone River Watershed” - 2009

With MET funding in partnership with Mass Audubon, the BRC developed stormwater outreach materials for homeowners, business owners, developers and local decision makers. Many of our materials have been adapted by other watershed organizations, as well as the NRCS in South Carolina.

Campaign for a Fishable/Swimmable Blackstone River by 2015

A Homeowner's Guide to Protecting Water Quality in the Blackstone River Watershed

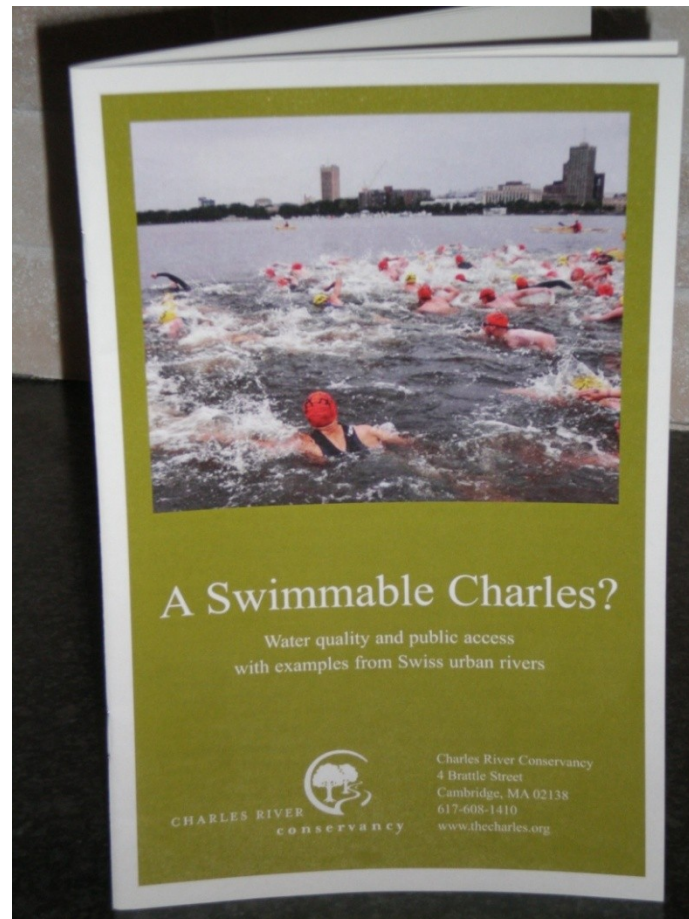


If you live in the shaded area of the map, then you live in the Blackstone River watershed. You can help restore and protect its water quality. Look inside to learn how. A cleaner Blackstone River begins in your own backyard!

The Blackstone River Coalition

CHARLES RIVER CONSERVANCY “SWIMMABLE CHARLES” – 2009

The goal of the Swimmable Charles Initiative is to bring public swimming back to the Charles River. Great progress has already been made towards raising public awareness of this effort through the press and actually having swimmers in the Charles for the first time in over fifty years this past July.



Provincetown Center for Coastal Studies

“Large Whale Disentanglement Program “- 2009

The marine animal disentanglement team, based on Cape Cod, has disentangled over 150 marine animals over the last two decades, including over 20 critically endangered North Atlantic right whales, a prominent emblem of Massachusetts' efforts to care for marine and coastal environments.



IPSWICH RIVER WATERSHED ASSOCIATION

Changing Behaviors through Greenscapes: A Social Marketing Assessment and Implementation Project – 2007-2008

During 2007 and 2008, the Ipswich River Watershed Association was awarded \$30,000 by MET to develop a social marketing plan for Greenscapes, a public education and outreach program geared to homeowners, focused on protecting Massachusetts rivers, streams and bays by reducing the use of water and chemicals on lawns and landscapes. MET funds were used for focus groups and surveys of residents in a number of North and South Shore communities served by the Greenscapes program, in order to improve marketing strategies which would facilitate behavioral change. Based on these results, the major outreach piece was simplified and redesigned. A design firm was contracted to develop a calendar for April 2009 through March 2010 that guides landowners on organic landscaping practices; over 20,000 calendars were distributed to participating towns in 2009.

